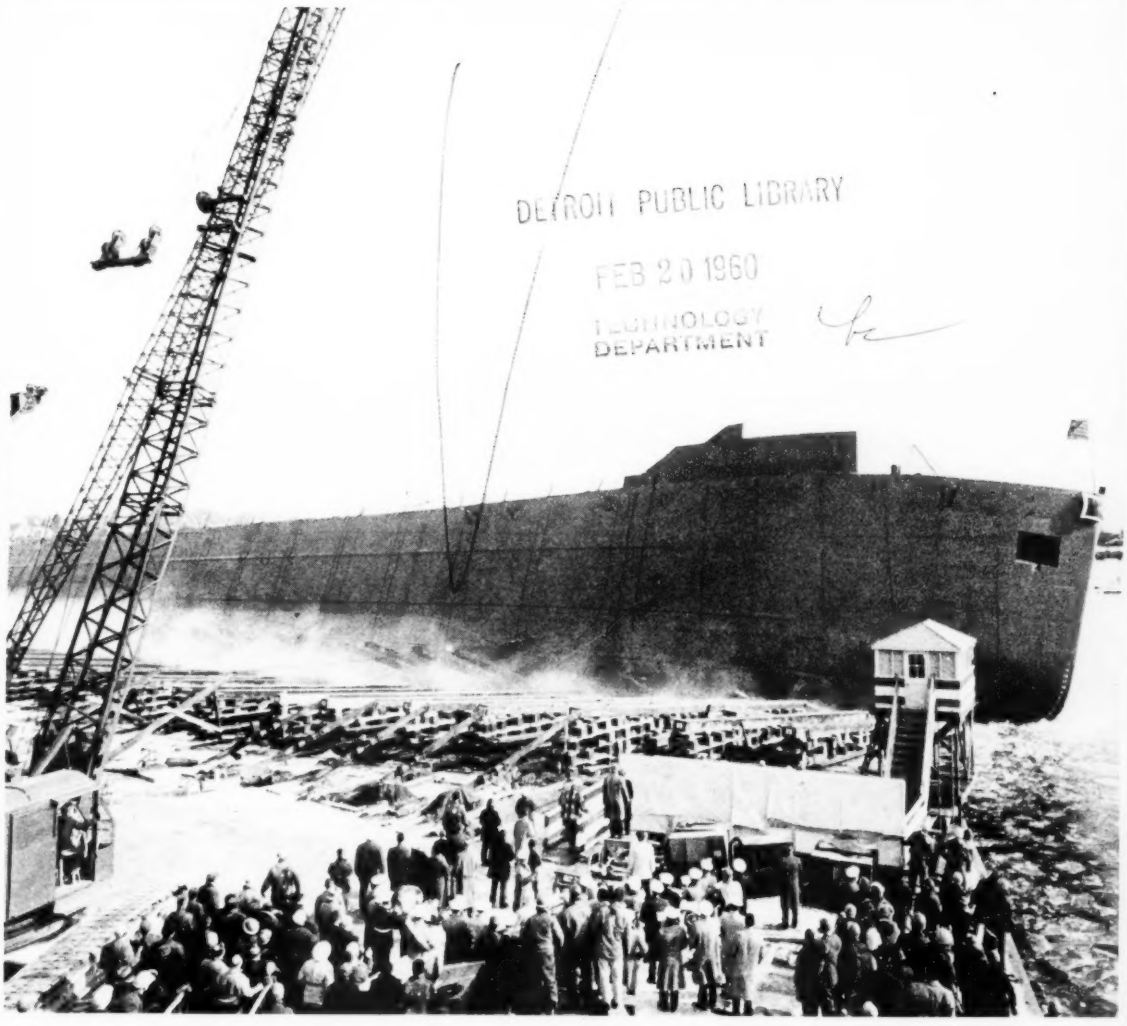
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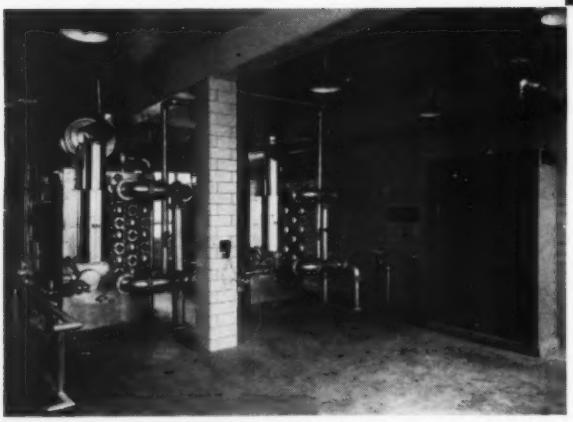
INDIVIDUALISM IN ENGINEERING — PAGE FIVE

Vol. 12 FEBRUARY, 1960 No. 7



Hamilton's new Treatment Plant— another major step in Ohio River Clean-up Program

Aerial view shows four P.F.T. Floating Cover Digesters



Efficient and economical digester heating is provided by these P.F.T. heaters.

Hamilton's new sewage treatment plant is the culmination of a ten year sewerage improvement program. Serving Hamilton directly, this fine new plant helps to restore the Great Miami River just before discharging into the Ohio. Twenty-five miles from Cincinnati, Hamilton is a growing city which is proud to shoulder its share of the responsibility in the Ohio River Valley Clean-up Program.

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Midwest Engineer

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COVER STORY

Inland Steel's new flagship Edward L. Ryerson was launched on January 21. The ship, largest permitted by navigation regulations, comes off the launching ways in Manitowoc Shipbuilding yard, Manitowoc, Wis. An additional article appears on page 16.

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Dr. Rettaliata, WSE and IIT President, holds Award Certificate. H. I. Romnes, left, President, F. B. Smith, Works Manager, and H. R. Heckendorn, Superintendent of Manufacturing Engineering at Western Electric Co., admire Certificate.

DECEMBER 17 at WSE



William V. Kahler, Past President and Honorary Member of WSE and President of Illinois Bell Telephone Co., converses with Mr. Romnes. Dr. John T. Rettaliata and F. B. Smith are also seen at the attractively decorated speaker's table.





Top, right, some of the girls of the championship chorus of the West Suburban Chapter of Sweet Adelines, Inc., admire the WSE Christmas tree. Phyllis Haeger, center, daughter of WSE member Milton Haeger, leads the group.

The Pioneer Dinner was a feature of the evening's festivities. Above is seen proof that the advance publicity was correct in saying: "You will see them (suckling pigs and turkeys) carved before your eyes. George Uniek carves.



Before and during the Pioneer Dinner in the Western Society of Engineer's fifth floor Dining Room, WSE members, friends, and in this case even other entertainers (members of the chorus) were entertained by a musical group.



Refreshments were served in the Western Society Lounge on the sixth floor. They, as well as hors d'oeuvres, were also available in a seventh floor auditorium, as seen in this photograph of Western Society members and boosters.

Individualism

IN ENGINEERING

By H. I. Romnes

I'm sure you must know that it didn't take the inducement of an award to get me to come here this evening. Actually, when I first accepted your kind invitation, the only inducement I knew anything about was the prospect of seeing some old friends and meeting some new ones.

With your permission, I'd like to keep this citation, not so much as a testament to anything I might have done, but as a memento of my own association, brief as it was, with the Western Society of Engineers. It was for me a very rewarding association — not only for the professional stimulation it afforded—the cross-fertilization of ideas among the technical disciplines represented in the society—but also for the good friends I found here. It's good to be back.

My topic for this evening, and I confess I conceived it in a somewhat more solemn mood than seems appropriate for this gala occasion, is "Individualism in Engineering." It occurred to me that your anniversary might be a good time to review the changing role of the engineer in the perspective of the 90 years since the Western Society of Engineers was founded. I promise, though, that this will be one of the fastest 90 years in history. I shall not speak so long or indulge in such profundities, assuming I were capable of them, as might dampen the spirit of the evening. Rather do I

WESTERN SOCIETY'S 90TH ANNIVERSARY CELEBRATION

THE FINAL and greatest event of the 90th Anniversary year. That was the Western Society's 90th Anniversary Ladies Night Christmas Party, held December 17, 1959, at the Society's Headquarters in Chicago.

The complimentary Social Hour started at 5:30 P.M. on the 6th floor Lounge and the 7th floor's small Auditorium, and was strictly in the spirit of ye olden days. Libations of long ago were available. Hors d'oeuvres were featured in the Small Auditorium.

The Pioneer Dinner, served family style, was a novel innovation. It was carried out in the style of 1869, with suckling pig and turkey. The dining room was well filled, but not crowded, and the diners thoroughly enjoyed themselves.

Dr. John T. Rettaliata, president of the Western Society and of Illinois Institute of Technology opened the meeting at the dinner's end. He introduced those sitting at the speakers' table, including Harold R. Heckendorn, superintendent, manufacturing engineering, Western Electric Company, and WSE's program chairman; F. B. Smith, works manager at Western Electric Company's Hawthorne plant; William V. Kahler, president of Illinois Bell Telephone Company, a past president and Honorary Member of the Western Society; and Ormas G. Smith, chief engineer, Illinois Bell Telephone Company and a Society past president.

DR. RETTALIATA next introduced Mr. H. I. Romnes, president of Western Electric Company, and while in Chicago, a member of the Western Society, and Dr. Rattaliata conferred on him the Society's Citation Award.

Mr. Romnes then addressed the meeting on "Individualism in Engineering." His address is published above.

At the conclusion of Mr. Romnes' words, the meeting adjourned to the Large Auditorium on the 7th floor to be entertained by "Vocalizing through the Years."

Milton Haeger, president of Abell-Howe Company and a long-time member of WSE introduced "Barbershopping," the art exemplified by barbershop quartets, and his daughter Phyllis Haeger. Phyllis, in turn, introduced the West Suburban chorus of Sweet Adelines, Inc. The director, she then led them in such pieces as, surprise, "Sweet Adeline" and "Hello to Everybody," "I Lost My Glasses, or I Wonder Who's Kissing Me Now," and "Bill Bailey Won't You Please Come Home."

Miss Haeger next introduced herself and three friends, namely, the nationally known Vocal Chords. This group performed no less than six pieces.

The Chord Kings, otherwise known as the Abell-Howe Four, then sang a number of barber shop favorites. The 24-girl West Suburban Chorus then came back again, closing the evening's festivities with "Strike up the Band."

prefer, in keeping with your theme, to strike a note of reminiscence.

By a happy coincidence the Western Electric Company is also celebrating its 90th Anniversary this year. I've looked up the records and find that the Western Society of Engineers was founded on May 25th, 1869; the Western Electric Company didn't get its start until later in the year. We're sort of Johnny-come-latelies in comparison with you. But, if you'll be indulgent to our youth, I'd like to look back a little to the origins of our Company for such lessons as ancient history has to offer.

The Western Electric Company was founded by two young men, one an enterprising ex-telegraph operator named Enos Barton, the other an engineer and inventor named Elisha Gray. With their Biblical names and the austere countenances they show in the pictures that have come down to us, old Enos and Elisha seem like men of another age, remote from our experience. Yet to me their partnership symbolizes the two elements, enterprise and inventiveness, which have been the well-springs of our industrial progress down through the years and which remain our best hope of progress for the future. And in their partnership I see, too, a pattern for the future relationship between engineer and manager in industry.

But I'm getting ahead of my story . . .

Enos Barton, the enterpriser of our two founding fathers, remained active in our Company all his life. His firm direction made it, by 1900, the largest electrical manufacturer in the world. His character endures in the character of our Company today.

Elisha Gray

But tonight we are more concerned with Elisha Gray, engineer and inventor. Like so many of his kind, he did not remain long with the enterprise his genius helped to found. But his influence endures. He was for a time, in the quaint expression of the day, Western Electric's "electrical expert" here in Chicago. (I suppose that means consultant.) But most of his mature years he spent as Professor of Physical Science at Oberlin College. He is honored in communications history as the inventor of the telautograph, a device to transmit the written word electrically, and of numerous telegraph components.

Elisha Gray was an individualist. He was kin to that legendary breed of 19th century giants whose names are carved in stone around so many engineering college buildings: Morse, Bell, Edison, McCormick. He was largely self-educated. He spent his life from boyhood forward reading, questing, experimenting in the physical sciences. The only resources he required to fulfill his mission were a few books, a few tools for his experiments—and his own probing intelligence. The phrase "engineering teamwork" would have meant nothing to him. If he had colleagues, they were his scientific forebears, Newton and Faraday and the like. He worked alone. He was an individual.

The odds are against our ever seeing the likes of Elisha Gray—or Morse or Bell—again. Never again, in all probability, will we be able to ascribe so much to so few men. Today's technology is so complex that new breakthroughs, as they come, will be the work of scores, even hundreds, of scientists and engineers working on common projects. And yet, it seems to me, we may be on the threshold of a new era of individualism in engineering in which some of the attributes of these few men will stand us in good stead.

I shall leave it to the philosophers to explain the changing pace with which our technology advances. But some of you may have observed how, down through history, sudden surges of creativity occur, only to be followed by long slow periods of uneventful assimilation. We had such a creative surge in the latter half of the 19th century and spilling over into the early years of our own century. Within a few decades the shops of the inventors had been transformed into huge industries—the electrical industry, the auto industry, the communications industry, the aviation industry. The simple prototypes from which they sprang had become incredibly complex. What took one engineer to invent now took hordes of engineers; to refine and improve the product, to reduce its cost, to specify manufacturing facilities and raw materials, to assure quality, and scores of other tasks.

Inevitably in the process the engineer lost some of his sense of individuality. The possibility of making a unique personal contribution began to seem more

Watermelon on a stick may be the newest national frozen confection fad next Summer if a Texas company is able to expand its operations fast enough, reports *Food Enginering*. The company now ships chilled "melon squeezings" in 4,000 gallon tank trucks to dozens of creameries and other plants in its area for final processing.

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remote. And increasingly the engineer found himself called upon to perform intricate and complex but essentially uncreative computations and analyses. What had started out as a challenge became a chore. All too often in this period the engineer's four years of technical education stood him in good stead for a lifetime. There were no new frontiers anymore, or so some of our deep thinkers were telling us. America—its economy, its technology — had "matured."

Explosion of Creativity

Then came a new explosion of technical creativity. We are in the midst of it right now. The evidence that it is here is all around us—in the swift advance of solid state electronics, of computer technology, of the technology of space exploration. Today the spur of competition quickens the pace of progress, competition not only within our own free economy but also from the Soviet Union which has explicitly flung down the gauntlet in the realm of science and technology.

Economic factors have a bearing, too. Under the pressure of the inflationary process, industry looks to the engineer to conceive drastically new production processes, combining what were formerly separate and distinct operations into uninterrupted self-controlled sequences from fabrication to inspection and packaging. As industry undergoes this massive transformation, engineering itself becomes a more critical element of cost of product. All these trends conspire to place a greater emphasis on fresh, creative thinking, the kind that can see through a maze of detail to the best and cheapest solution.

Today the engineer is called upon to fulfill a new and more exciting role. And the attributes he will need to fulfill his mission seem to me to be closer to those of Elisha Gray than of the more recent past. Today the self-educated engineer is rare and the more to be honored for being so. More to the point, though, today no engineer can consider himself educated merely because he has completed a technical curriculum. Today engineering, as it was for Elisha Gray, is a continuous process of self-development. And today those attributes of the fabled inventors come to the fore again —initiative, imagination, curiosity, creativity—all of them elements of personal capacity no engineering school can teach.

I hope nothing I have said seems to imply that engineering teamwork is or will be any less vital than it has been. For the ability to work well with others is itself a personal attribute. What I am saying is that the demands of the future will require more of the engineer, not merely as an engineer, but as a man.

Demands of the Future

The demands of the future pose a challenge, too, to industrial management. We shall need to evolve new and more flexible ways of administering the engineering job. The engineer, to realize his maximum potential, needs freedom. A company, on the other hand, must be responsive to the stern discipline of profit and loss. But I refuse to recognize this as an insoluble dilemma. I think we can, I think we are now evolving ways to provide scope for the engineer to achieve professional satisfaction within the framework of a purposeful organization. We are beginning to see that the freedom the engineer wants is the freedom to accept responsibility and that, given the goals and standards of the organization, he will manage his respon-

(Continued on page 13)

New Hampshire's famous "Old Man of the Mountains," the natural rock formation that inspired Nathaniel Hawthorne to write "The Great Stone Face," is being protected from the weather by modern electronic equipment, reports *Electronics*. Engineers have installed strain gages on the steel rods used to reinforce the stone face to measure shifts in the formation of the rock.

REMEMBER . . .
Get a MEMBER!

Won't you stop, for just a moment, and think of some one you know who should belong to the Western Society of Engineers?

And won't you stop, for just a moment, and put his name and address, along with yours, on a PROPOSAL FOR WSE MEMBERSHIP card.

Won't you mail the card this week?

This little act will only take a moment—and is bound to make you feel good.

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Herbert Payne Sedwick

the Recipient for 1960

Members and friends of the societies participating in The Washington Award for 1960 will attend the conferment upon Mr. Sedwick on Monday, February 29, 1960 at the Furniture Club of America in Chicago. After an informal reception at 5:30 p.m. and dinner at 7:00 p.m., George L. Jackson, chairman of the Washington Award Commission, will offer his remarks. Presentation of the token of the award will be made by Dr. John T. Rettaliata, president of the Western Society of Engineers. Mr. Sedwick will then make his address entitled "Professional and Extra Curricular Activities."

WASHINGTON AWARD — 1960

HERBERT PAYNE SEDWICK, 1960 recipient of the Washington Award, has been a constant inspiration to his associates in the utility industry, in civic affairs, and in professional activities. A dynamic individual, he has by his personal example stimulated others to advance themselves in their profession.

Mr. Sedwick grew up in the electric and gas utility industry which he served for over 45 years. Intimate acquaintances would agree that he excelled in each position and initiated improvements in each area of his responsibility.

Among the more outstanding achievements with his participation and under his management were:

— the successful conversion by the Public Service Company of Northern Illinois from manufactured to natural gas.

— the development of a new concept of high-pressure gas storage in underground pipe which permitted substantial economies in storage of natural gas.

— the development of a divisional concept of operation for utilities.

— the development and improvement of a multitude of major designs, operations, public relations and services in the electric system serving metropolitan Chicago and Northern Illinois.

Perhaps his most important contribution to human progress has been the influence he exerted to provide an environment favorable to creative developments in engineering and to management development in engineers.

Mr. Sedwick has given unstintingly of his time in serving on numerous technical committees in the industry, and has brought aid and advice to many municipalities in their city planning, with particular reference to their water problems and their quest for new industries.

His influence extended into many other areas. His accomplishments in advancing human progress are indeed noteworthy. This is reflected through his membership on the Board of Trustees of the Illinois Institute of Technology, as president of The John Crerar Library, as director, for many years, of the Chicago Regional Planning Association, and as executive vice president and general manager of the Presbyterian-St. Luke's Hospital, in which capacity he has guided the physical merger of these formerly two large independent hospitals; also in his work as president of the Western Society of Engineers. There he was instrumental in the establishment of present headquarters and other organizational improvements. He has had a dedicated interest in developing the full potential of younger engineers. Typical of this effort was the important part he played in organizing the Society's Young Engineers Forum, a yearly series of dinner meetings designed to allow young engineers to benefit from the professional experience of their established peers.



Herbert Payne Sedwick

MR. SEDWICK was born in Fayetteville, Arkansas on January 17, 1893. He is an alumnus of the University of Arkansas. His service in the public utility industry began in 1913 with the Public Service Company of Northern Illinois. From then until 1923 he served in various engineering and supervisory capacities. From 1923 to 1933 he was assistant to the vice president in charge of electric and gas operations, from 1933 to 1941 he was general manager, and then, until 1951, was vice president of Public Service Company. He next served as executive vice president, and in 1953 he was elected president of Public Service Company. He also served as president and director of the Northern Illinois Gas Company during its formative period in 1953-1954.

With the merger of Public Service Company into the Commonwealth Edison Company, Mr. Sedwick became a director of Edison and from 1953 to 1955 was executive vice president of Commonwealth Edison Company and president of the Public Service Division until his retirement in 1958. He continued as a director of Edison.

He is a past president and an honorary member of the Western Society of Engineers, a member of the American Institute of Electrical Engineers, The Chicago Club, the Commercial Club of Chicago, the Glenview Club and the Citizens Board of the University of Chicago.

Reviews of Technical Books



Modern Physics

Modern Physics for the Engineer, edited by Louis N. Ridenour, McGraw-Hill Book Company, Inc., New York 36, New York. Pages, 499. Price, $7.50.

This collection of lectures and discussions which are compiled from various university courses is useful as collateral study for the technical man in any scientific or engineering field. There are three main categories, into one or another of which each of the chapters can be classified. The first part is labeled "The Laws of Nature," the second part, "Man's Physical Environment," and the third part, "Information and Its Communication."

Considerable uniformity is achieved in the complex discussions considering the many authors engaged in preparing the manuscript. A major portion of the book is devoted to classifications and correlation of physical and natural phenomena. In particular, the first two parts of the book are devoted to the exposition of Atomic Structure, Physics of the Solid State, Magnetism, Microwave Spectroscopy, Electronuclear Machines, Astrophysics, Highpressure Phenomena and Geophysics, The Earth Beneath the Sea, Thunderstorms and Lightning Strokes, and Transient Phenomena in Supersonic Flow.

In the third part of the book, the chapters deal with the application of physics to an important field of engineering. The field concerned is very broad in scope, and of vast practical significance. It is the field of modern electronics and the communication and information processing techniques which modern electronics is making possible. This field is developing so rapidly that it is making extraordinary demands on basic science.

Production of Houses

Design and the Production of Houses, by Burnham Kelly, associate professor of City Planning, and associate at Massachusetts Institute of Technology. Pages, 428. Illustrated. Price, $10.00. This volume is part of a Series in Housing and Community Development by ACTION.

Noted experts in architectural design, materials production, construction, and other areas have surveyed the whole process of designing and producing new homes. The results of their survey are presented in *Design and the Production of Houses*. They explore the complexity and localism of the industry, and review the forces that make major changes inevitable. The relationships between design and production are discussed.

Some of the subjects discussed are advances in house design, design and the industrialized house, land development, current patterns of fabrication, construction advances, housing industry research, labor-management relations, building and land use controls, and future builders. In addition to Mr. Kelly, Bernard P. Spring, Carl Koch, Hideo Sasaki, Albert G. H. Dietz, Castle N. Day, James A. Murray, and John T. Dunlop have contributed to this book.

Surveying

Surveying, by Charles B. Breed and Alexander J. Bone, John Wiley & Sons, Inc., New York 16. Pages, 495. Price, $5.50.

In this second edition a thorough re-examination has been made of surveying fundamentals and problems, and sources of information have been brought up to date. The text has been prepared to meet the requirements of extended or limited courses in surveying. Principals, use of instruments, and field exercises are discussed in detail and should give the student or engineer a sound knowledge of the technique used in plane or geodic surveys.

Included in the 15 chapters is the treatment of Aerial Surveying and Photogrammetry, Circular Curves, and Plotting and Finishing Maps. In addition, the text contains information on the latest practice for the United States System of Surveying Public Lands.

The usual field and office practices in land surveys, in leveling, and in topographical surveys are thoroughly covered. The chapter on Lines and Grades is particularly designed to give an insight into the surveying problems that arise in connection with engineering construction. Fifteen useful tables are available for necessary computations, and over two hundred figures and diagrams are shown to illustrate pertinent principles and problems.

Properties of Materials

Nature and Properties of Engineering Materials, by Zbigniew D. Jastrzebski, John Wiley & Sons, Inc., New York 16, N.Y., 1959. Pages, 571. Price, $11.00.

Approaching the fundamental nature of materials from an engineering point of view, and keeping realistic applications in mind, Zbigniew D. Jastrzebski, professor of chemical engineering at Lafayette University, provides a close link between the basic sciences of chemistry, physics, and engineering practice.

Nature and Properties of Engineering Materials considers the basic concepts of interatomic and intermolecular forces and their relationship to the structural characteristics of both crystalline and amorphous materials. Dr. Jastrzebski follows this with a discussion of such phenomena as diffusion, crystallization, phase transformations, and phase equilibria. These principles are developed further in the subsequent chapters which consider more specifically the characteristic properties of metals, ceramics, and related materials.

Dr. Jastrzebski's unified treatment, stressing the interrelationship among various properties and structures as well as the effects of environments, is made possible by generalizing those theoretical principles that form a common basis for understanding the properties and behavior of different materials. In discussing mechanical properties, for example, the author explains elasticity, plasticity, and flow phenomena by reference to different types of materials and their structural characteristics.

High AIME Award Goes to Five Men

The highest distinction, Honorary Membership, within the gift of the American Institute of Mining, Metallurgical, and Petroleum Engineers, has been awarded to five men of outstanding achievement in fields of interest represented by the 89-year-old, 35,000 organization. Included in the five is Wilfred Sykes, Western Society honorary member, and WSE trustee from 1948 to 1951.

This signal and significant accolade will be bestowed formally the evening of February 17, 1960, during AIME's Annual Banquet, in the Statler-Hilton Hotel, New York, on:

Andrew Fletcher, of New York, president of St. Joseph Lead Company; John Meston Lovejoy, of New York, consultant on oil investments; Henry DeWitt Smith, of New York, former vice president of Newmont Mining corporation; Wilfred Sykes, of San Francisco, former president of Inland Steel Company; and William Embry Wrather, of Washington, D.C., former director of the United States Geological Survey.

All five new Honorary Members have received professional and academic honors. Mr. Fletcher, Mr. Lovejoy, Mr. Smith and Mr. Wrather have been presidents of AIME. Mr. Sykes has been an AIME vice president.

Sykes Cited for Service

Mr. Sykes has been cited "for distinguished service to the steel industry, particularly as a pioneer in the development of electrical equipment for steel mills; active member of many technical societies; effective Director and Vice President of the Institute; contributor of important technical papers; leader in civic, economic and political affairs."

Born in New Zealand, Mr. Sykes was graduated from the Technical College and University, Melbourne. Mr. Sykes was employed in Australia and Berlin before coming to the United States in 1909 to join Westinghouse Corp. He was with Westinghouse until 1920, pioneering in the development of large reversing rolling mills. In World War I, Mr. Sykes was a Navy consultant in the design of electrical equipment for submarines and other craft.

He joined Steel & Tube Co. of America as executive engineer in 1920. In 1923 he became consulting engineer to Colorado Iron and Fuel Co. and to Inland Steel Co. He joined Inland Steel in 1923. After three years as assistant general superintendent at the company's Indiana Harbor plant, Mr. Sykes became assistant to the president in 1930. In 1941, he was named president of Inland Steel Co. and its subsidiaries. He remained in that post until 1949, when he became chairman of the Executive and Finance committees. He retired at the end of 1953 from active service. He has been consulting engineer to Inland Steel since then.

Mr. Sykes is an Honorary Member of the Western Society of Engineers, a Fellow of the American Institute of Electrical Engineers, a Fellow of the American Society of Mechanical Engineers, a Fellow of the Royal Society of Arts (London), a member of the American Iron and Steel Institute. He holds honorary degrees from Illinois Institute of Technology and Lincoln Memorial University.

In 1954, Mr. Sykes received the AIME Rand Medal. He holds the Award of Merit of the Chicago Technical Society Council, the Washington Award (sponsored by Western Society of Engineers, AIME, American Society of Civil Engineers, The American Society of Mechanical Engineers and the American Institute of Electrical Engineers), and the Honorary Award for Distinguished Service in Engineering, from the University of Missouri.

Mr. Sykes has been prominent in Chicago civic and educational works, including being Trustee of Illinois Institute of Technology, chairman of the Chicago Housing Authority, president of the Chicago Association of Commerce and Industry, and president of the Glenwood School for Boys.

Mr. Sykes was a Director of AIME and, in 1936-1941, vice president.

Life Sustaining Study

Methods of sustaining the lives of spacemen on long flights by reconversion of human wastes into oxygen, food and water are now under study by sanitary engineers at Illinois Institute of Technology's department of Civil Engineering.

Tightly sealed in a space capsule, platform or ship, tomorrow's spacemen will literally be living in a little world of their own and must convert and re-use the materials they have at hand to sustain themselves. They might be compared with goldfish living in an aquarium. In fact, that's what scientists visualize for the space man.

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Here on earth, man lives in what is called an open ecological system—a balanced system consisting of plants and animals. The "little world" planned for the space man within his craft is called a "closed ecological system," a system with limited plant and animal resources. In such a closed system, converting the human wastes into forms that will serve as nutrients for plant growth is the key to the problem, according to Dr. Linvil Rich and Robert Matthern, IIT engineers.

Such nutrients would provide food for algae, a basic, edible, plant form, which in turn, would 1. provide a source of food, and 2. act as an oxygen-carbon dioxide converter to provide the space men with oxygen for breathing.

Research shows that algae is nutritious for man, being abundant in protein and carbohydrates. The fact that it is a green plant means it contains chlorophyll and is capable of photosynthesis—the conversion of carbon dioxide into oxygen and plant food in the presence of light and water.

IIT engineers are seeking to find a biological converter that will efficiently convert organic solid wastes into inorganic materials. This information will be used in designing the smallest and most rapid method of waste conversion in keeping with space and weight limitations for space vehicles.

WSE Civic Committee Feb. 17, 1960 Meeting

Dinner: 6:15 P.M.
Meeting over by 8:30 P.M.

SPEAKER—Paul van T. Hedden

Owner—Paul van T. Hedden, Planner
B.S.—Washington-Jefferson University
L.L.B.—Boston University
Admitted to Massachusetts Bar
Formerly—Executive Director of Chicago Planning Commission
Deputy Commissioner of Department of City Planning, Chicago
Developed Fulton Industrial District in Atlanta, Georgia
Member of—
American Institute of Planners
American Society of Planning Officials
American Society for Public Administration
Chicago Real Estate Board
W.S.E.
National Industrial Zoning Commission
President of Urban Research Institute

TOPIC OF TALK—

What is the direction of the industrial climate in the Chicago Metropolitan Areas—hotter or colder?

Mathematical Statistics

The use of mathematical statistics as a tool for industrial research was advocated in St. Paul, Minn. on Sept. 30 at the National Meeting of the American Institute of Chemical Engineers.

Corporations undertaking long-range research programs also were advised to "underwrite the statistical education of apt employees."

"Thus," said F. P. Vance, of the Atomic Energy Division of Phillips Petroleum Company, Idaho Falls, Idaho, "Ph.D. level consultants can be generated within two to four years depending upon the previous education and background of the individual."

"It has been demonstrated that the combined effects of the correct type of experimental design and the use of the correct number of observations lead to substantial economy in the amount of experimental work required for solution of a problem. This economy far outweighs the time and thought required to plan the experiment statistically."

Another method for obtaining mathematicians for statistical work would be by the creation of "industrial research fellowships," for university professors.

"These 'fellowships'," he continued, "would be discharged by consultation essentially in the capacity of the statistical group . . . and concurrently with university activities, or during sabbatical leaves. Many mathematical statisticians become teachers because their interest in 'pure' or theoretical statistics is much stronger than in applied statistics. Hence the problem of communications is more difficult, but well worth the effort."

Non-Woven Fabrics

A new acrylic latex plastic may permit clothing such as suits and dresses to be made from low-cost, longer-wearing nonwoven fabrics, says *Chemical Engineering*. Nonwoven fabrics treated with the latex are easier and cheaper to make, are stronger and can be washed or dry cleaned often—two processes that rapidly ruin nonwovens treated with conventional materials.

Sound Tests

With all the technical knowhow that goes into launching a rocket, one vital test during countdown is a simple tap on the side of the case with a screwdriver, reports *American Machinest*. Under the impressive title of "ultra-low-frequency sound testing," the tap tells whether the solid fuel has broken away from the case.

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Alfred Noble Prize Awarded

Two major engineering awards, one sponsored by five societies and the other by the American Institute of Mining, Metallurgical, and Petroleum Engineers, will be presented to Dr. Paul G. Shewmon, assistant professor of metallurgy at Carnegie Institute of Technology, Pittsburgh, at the AIME national convention in New York City in February, 1960.

The Alfred Noble Prize, a joint honor of WSE, AIME, the American Society of Civil Engineers, The American Society of Mechanical Engineers, and the American Institute of Electrical Engineers, and the Rossiter W. Raymond Memorial Award, given by AIME, will be presented for the same technical paper. The paper, entitled "The Redistribution of a Second Phase During Annealing in a Temperature Gradient," was published in October, 1958, in the *Transactions of The Metallurgical Sociey of AIME.*

The Raymond Award will be presented the evening of Feb. 16 at The Metallurgical Society dinner. The Alfred Noble Prize will be presented the following evening at the AIME annual banquet.

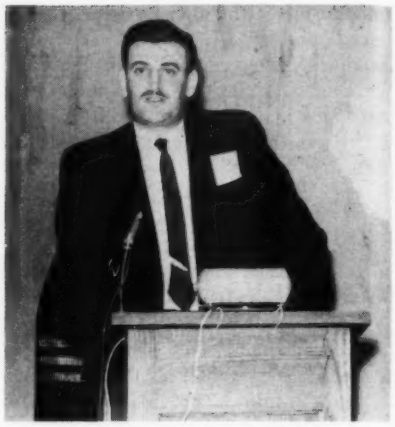
The Alfred Noble Prize is available to members of the five sponsoring organizations for a "technical paper of particular merit," by an author who is not over 30 years of age when the paper is accepted in its final form.

The Rossiter W. Raymond Award, established in memory of an early president and honorary member of AIME, who also served it as secretary for 27 years, is for the best published paper written by an AIME member under 33 years of age. Not only the technological content but the proficiency of organization of the material and the literary style are criteria for judging papers.

Dr. Shewmon, who received a B.S. at the University of Illinois in 1952, was graduate student and holder of the Dow Fellowship in Metallurgy at Carnegie Institute of Technology from 1952 to 1955. He was with the Metal Physics Group of Westinghouse Research Laboratory, 1955 to 1958. In 1958, he was appointed assistant professor of metallurgy at Carnegie Institute of Technology.



R. D. Maxson speaks on Membership in WSE. Trustee Frank M. Scott listens.



Mr. Klaus Rosenstern tells of what he saw on his trip through Russia.

A West Suburban Meeting

The Second West Suburban Meeting of the Western Society of Engineers was held on Dec. 9, 1959 at Remick's Lilac Lodge, Wolf and Cermak roads, in Hillside, Ill. A total of five meetings presently have been scheduled, the third for February 10.

Those in attendance on December 9 enjoyed a Swiss steak dinner, starting at 6:30 p.m.

After dinner, Harold R. Heckendorn, Western Society program chairman, called the meeting to order. The first speaker introduced by him was Mr. R. D. Maxson, Society vice president and consultant for Commonwealth Edison Co. Mr. Maxson gave an interesting talk on "Membership in the Western Society of Engineers — Why You Should be a Member."

Mr. Heckendorn next introduced Mr. Klaus Rosenstern, chief engineer of Material Service Corp. Mr. Rosenstern talked on "Research and Production of Pre-stressed and Pre-cast Concrete Forms," as observed in Russia.



Mr. Robert H. Brown, Sr. (third from left) explains about the Western Society. He had various pieces of printed material regarding the Western Society available for distribution at his "answer" table.

Individualism
IN ENGINEERING

(Continued from Page 7)

sibilities more conscientiously, measure his progress more critically than anybody else. We are beginning to see the inadequacies of the spirit, if not the forms, of the hierarchical kind of organization industry inherited from the military. We are developing in its stead a new freedom of communication — up, down and across the organization — which is stimulating the progress of the whole job. The spirit of this communication is not that between the boss and the bossed. Increasingly, it's communication among colleagues.

Which brings me back to Enos Barton and Elisha Gray. I think I said earlier that I saw the broad pattern of the future relationship of the engineer and the company that employs him symbolized in the partnership of Enos Barton and Elisha Gray, a partnership of enterprise and inventiveness.

Enterprise and Inventiveness

Enterprise and inventiveness: each pursues its own goals, yet each is essential to the other. When they make common cause together, good things happen. When they fall out, fail in appreciation of each other's goals, frustration emerges and progress slows.

To my mind it is only through the development of a fuller understanding of the engineer's needs, through providing broader scope for his aspirations that industry can derive the advantage of his full creative potential. A corollary effort of understanding is required of the engineer, an understanding of the organizational and economic machinery by which his innovations are brought to the service of society. The fullest development of this mutual understanding calls for the evolution of new patterns of human relations in industrial engineering organizations. Indeed, this evolution is already under way. I don't have a ready label for the new mode of administration that will, increasingly, I think, govern the relationship between the men who manage enterprise and those whose technical creativity is essential to its success. The word "partnership," though, at least symbolizes its intent.

Ninety years ago Enos Barton and Elisha Gray, the enterpriser and the engineer, sealed their partnership with a handshake. I am not so naive as to think we can resolve the complexities of engineering administration quite so simply today. But we know the direction we must travel. And we *are* making progress. I for one look forward as hopefully to the fruits of the new partnership of enterprise and engineering as hopefully as old Enos and Elisha did to theirs.

"The Sun so Hot I Froze to Death"

When Stephen Foster wrote "The sun so hot I froze to death," he may have been forecasting the truth.

An experiment using the sun's heat to power air conditioning units was described on Dec. 4 at the Annual Meeting of The American Society of Mechanical Engineers in Atlantic City.

In a paper presented at the meeting, Melvin M. Eisenstadt, The Martin Company, Orlando, Florida, and Frank M. Flanigan and Erich A. Farber of the University of Florida, said that using sunshine to power an air conditioning unit is a logical idea, since the hotter the sunshine, the more power it provides and the more heat a solar air conditioning system could remove. This provides peak efficiency when most needed.

The experimental unit they used works on much the same principle as a gas refrigerator, but instead of heat being supplied by a gas flame, it is supplied by the rays of the sun. The somewhat involved process by which heat can be used to cool things is called "refrigeration by absorption" and relies on a mixture of water and ammonia gas which is alternately separated and remixed. In practice, heat from the sun would be gathered by a "flat plate collector," which can be installed on the roof or near a building. Such collectors are relatively simple and inexpensive.

One problem on which the authors are working is finding the concentration of ammonia to water which would work best when the heat source is around 140 to 180 degrees Fahrenheit, much lower than the temperatures of a gas flame usually used in such systems, but easily obtained with current solar heaters. They concluded that solar powered air conditioners are technically feasible, if high concentrations of ammonia, from 40 to 70 per cent, are used in the absorption system.

Earthquake on Order

A machine that will produce an earthquake on order may help save lives during nature's tremblers, reports *Engineering News-Record*. The device, which weighs only 500 pounds, will test old buildings and get practical information on how to design structures to withstand quakes.

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Overall Demand for Engineers Increases

Industrial recruiting and the overall demand for engineers increased materially in 1959.

Acute numerical shortages were not widespread because of the large number of engineering graduates available for immediate employment. In 1959 there were 38,162 B.S. graduates in engineering, the largest class since 1951; 36 per cent greater than in 1956 and 41 per cent over 1955—the period in which shortage was most acute.

The demand for engineering graduates will increase, and by 1966 there will be 15 graduates recruited for every 10 hired in 1959.

At All-time High

Starting salaries are at an all-time high, averaging $510 monthly for B.S. graduates, $600 for M.S. graduates and $825 for Ph.D.'s. Aircraft, electrical equipment and electronics industries offered the highest salaries.

These are the facts on supply and demand for engineers, made public on Dec. 24, 1959 by the Engineering Manpower Commission of Engineers Joint Council, in its ninth annual report entitled "Demand for Engineers—1959."

According to the report, the downward trend in the demand by industry and government for engineers has been sharply reversed from that prevailing in 1958, when there was a close supply-demand balance. This, however, was due to the temporary recession in the economy and did not affect the absolute demand for engineers, which is constantly growing with the expanding economy over the years.

The report warns that, as the economy continues to expand, numerical shortages of engineers again may be present because enrollments in engineering schools in 1958 and 1959 have declined.

The report states that engineering turnover in 1958 averaged 9.5 per cent, a decline over 1957 (11 per cent) and was expected to drop to 8.6 per cent in 1959. The principal cause for losses is resignation (55 per cent), followed by death and retirement (9 per cent), military leave (6.5 per cent).

It also points out that demand for engineering technicians in 1959 also increased over 1958. Industrial employers expected to hire in 1959 one additional technician to every ten employed in 1958, while in-plant training of additional technicians also corresponds to about 10 per cent of the employed number.

As to future demand, the report shows that industrial demand—or recruiting—in terms of gross additions was 13.4 per cent in 1959; it is expected to rise to 15.2 per cent in 1960; 17.1 per cent in 1963 and 20.6 per cent in 1966. This reflects anticipated continuing expansion of needs for engineering graduates—particularly for new graduates. These trends vary from one industry to another. The most accelerated growth is expected to be in research and development, aircraft, electrical equipment and electronics, machinery and mining; the rate of additions of engineering manpower is expected to be below industry average in construction, railroads, utilities, and chemicals.

Since 1951 the Engineering Manpower Commission has conducted annual surveys to study and report on trends in the demand for engineering graduates in industry and government. This report presents the results of the 1959 survey, conducted during the period July-September 1959.

The report on "Demand for Engineers—1959" is available from the Engineering Manpower Commission, 29 West 39th Street, New York 18, New York.

N. U. Offers "Searching" Course

The Evening Divisions of Northwestern University is planning a new lecture series program to be given on the Chicago Campus in the second semester. This ten-week program on "Searching the Russian Technical Literature" will be presented Wednesday evenings from 8:10 to 10:00 p.m. from February 17 to April 20.

These non-credit lectures are intended for research scientists, patent attorneys, special librarians, and other interested individuals.

They will cover the organization of the Soviet research establishment, a description of the Russian scientific literature and methods of searching for different objectives. Knowledge of Russian, although very important for searching the Russian literature, is not absolutely necessary, since a considerable amount of searching can also be done with the aid of the English language sources of information on Russian science and technology, which will be surveyed in detail.

The program will be presented by J. G. Tolpin, professorial lecturer in Russian, Northwestern University, and technical associate of the Research Department, Standard Oil Company (Indiana).

Easy to Wear

An Ohio cement company makes it as easy for employees to wear their operator certification badges as it is for them to wear their pants, states *Factory*. Instead of a chest pin, button or engraved certificate, the company uses a belt buckle engraved with the operator's name and certified number.

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Micro Filters Grow Smaller but Better

Acting like tiny telephone operators in space, sub-miniature and micro-miniature filters, which are used to transmit and receive information from missiles, satellites, and other less exotic uses, are growing smaller and smaller, but better and better.

The Burnell & Co., Inc., pioneers in toroids, filters and related networks, have reduced the size of these sending-and-receiving units. With the help of The Arnold Engineering Company, a subsidiary of Allegheny Ludlum Steel Corporation, the special core units in the filters have been reduced from 4¼ pounds to ⅓-of-an-ounce. Since there are 23 filters in a complete set or "package," the weight savings alone is tremendous.

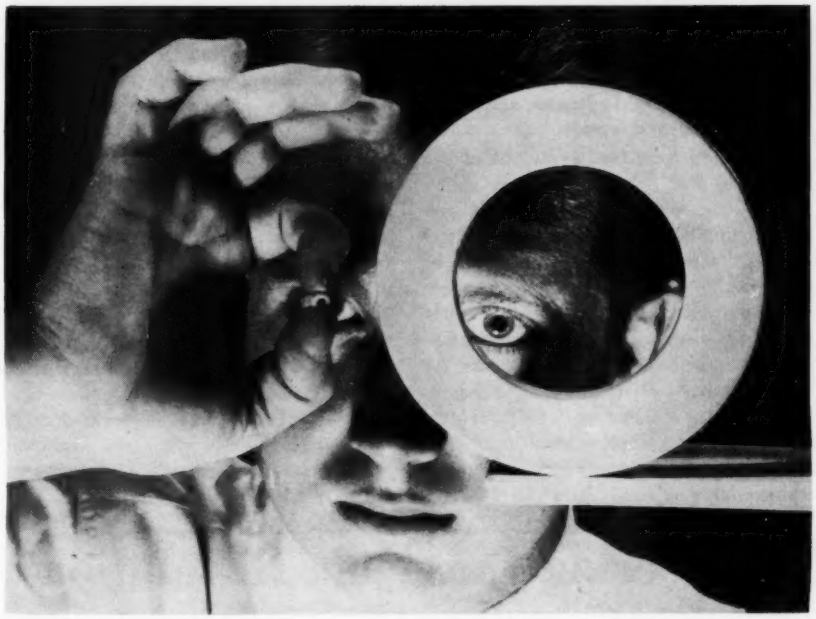
Arnold Engineering supplies the powder core, which is the working member of the filter unit. These cores are made of molybdenum permalloy powder compressed under high pressures, annealed and then finished. The filter can transmit and receive information on certain frequencies and filters out other frequencies. By using certain type filters, a missile or satellite can transmit such information as altitude, pressures, radiation, direction, various gases in the stratosphere or ionosphere and other valuable information.

With such filters as Burnell Company makes, it is possible to receive several messages over the same wire.

In 1947 the telemetering system, which uses 23 filters, and auxiliary equipment weighed a total of 207 pounds. This same type equipment with the sub-miniature and micro-miniature units would weigh 11.1 ounces.

While it was necessary to get compactness and lightweight into the systems, it was vitally necessary to get reliability. All Burnell filters are triple checked, and must withstand tests to have 100 per cent reliability. The filter units are tested for 100-G's or 100 times the force of gravity and at 2000 cycles per second vibration test. In addition, they are tested for electrical loads. Each unit must withstand ultra high voltage loads far in excess of the load it might be expected to encounter in use.

The unit is hermetically sealed or encapsulated. It is then ready to meet the tests of space.



Pictured is the smallest (.260 inches in diameter) and the largest (5.218 inches in diameter) of the powdered cores used in electronic equipment.

Membership Committee Award

The Membership Committee will award a Certificate of Recognition to the person who brings in the most new members this fiscal year. The Board of Directors authorized the award to stimulate the interest of present members in our membership drive currently under way. All members are invited to try to win this handsome certificate that anyone would be proud to possess. The certificate will be awarded at the annual meeting in the spring.

Proposal cards are now being distributed to all WSE members. These cards are to be used in submitting names of persons who may be eligible for membership in our society. They will then be contacted and invited to join the WSE. If and when this person becomes a member, credit for the new member will be given to the present member who submitted his or her name. The member with the most credits will then receive the award.

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Advanced Engineering Group

The Portland Cement Association on January 4 announced formation of an Advanced Engineering group at its General Offices in Chicago effective January 1, headed by Alfred L. Parme, nationally known structural engineer.

G. Donald Kennedy, president of the large national organization, described the new group as a "highly specialized unit, bringing together unusual engineering talent for the development of basic engineering data." Its purpose, according to Kennedy, will be "to apply the most advanced engineering, mathematical and physical principles, and the most modern test data, to achievement of even more efficient use of concrete in all of its many applications."

The group, which will include an electronic computer specialist and draftsman in addition to engineers, will draw upon investigations of the Association's $10 million Research and Development Laboratories in Skokie, Ill., and will maintain close working relationships with the extensive technical staffs of the Association in Chicago, and in 33 district offices.

Methods of design of large dams, building frames and concrete shell roofs were cited as some areas in which advanced work will be undertaken by the new group. In addition to highly complex engineering studies, significant design and construction contributions from foreign and other sources will be reviewed, specialized computer programs originated, and advancements in various fields of concrete use analyzed as to their most effective application to other areas.

Engineering Curricula Revolution

The nation's college engineering curricula are undergoing a revolution, a noted educator told the Winter General Meeting of the American Institute of Electrical Engineers in New York on Feb. 5.

Faced with a "turbulent technological scene," engineering colleges "are adjusting to the challenge by presenting students a more integrated body of fundamental knowledge, at the sacrifice of the specialized knowledge characteristic of the past," Dr. Gordon S. Brown, dean of engineering, Massachusetts Institute of Technology, reported at a session on education.

As a result, he said, many graduates of a modern four-year curriculum are capable of a career in any one of several industries. Industry, however, particularly the power industry, is less likely to find among four-year graduates the ready-made specialists it may need.

Influx of Knowledge

Dr. Brown, last year's winner of AIEE's Electrical Engineering Education Medal for his outstanding work in the field, stressed this situation reflects the great influx of technical knowledge which has occurred in the last two decades. The old doctrine—which emphasized specialization during a four-year curriculum—"stemmed from the assumption that technology would not change appreciably during an engineer's career."

"But today," he pointed out, "the problem for the engineering degree-granting college is different. . . . The changing face of technology presents educators with an ever widening spectrum of problems. With each successive commencement exercise, it becomes increasingly difficult and . . . unwise to equip graduates with specialized know-how skills related to contemporary engineering practice."

The answers to the needs of specialization, he indicated, lie in more post graduate work at universities, the offering of training courses by industry, and the affording of opportunities for engineers to obtain refresher instruction "in an organized manner every five years or so."

He called on industry "to keep abreast of the changing technical content of modern engineering curricula, and of the changing educational environment in order to communicate fluently with tomorrow's graduate. (Industry) needs to appreciate the vital role of on-campus research and graduate study in keeping our educational institutions places of learning, rather than merely places of teaching. The importance of recruiting top-flight young minds into all segments of industry on a balanced basis needs attention . . ."

Edward L. Ryerson, Ore Ship, Launched

Inland Steel Company's giant new ore boat, the *Edward L. Ryerson*, largest and most powerful ever built for the Great Lakes iron ore trade, was launched at noon on January 21 at the yards of Manitowoc Shipbuilding, Inc., the builders announced.

The new ship, designed to the maximum dimensions permitted by locks and channels of the Great Lakes, has an overall length of 730 feet and beam of 75 feet. When loaded to capacity, which will only be possible after the present program to deepen connecting channels of the lakes, the ship will carry 27,000 gross tons. At present restricted drafts the Great Lakes iron ore cargo record for ore cargo is 22,379 tons.

This sixth vessel of the Inland ore fleet will bear the name of one of the oldest steel families in America. Edward L. Ryerson is former chairman of Inland and of Joseph T. Ryerson & Son, a steel merchandising subsidiary of the steel company which was estab-

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lished in 1842 by his grandfather. The same family operated iron foundries on the Atlantic seaboard in Colonial times.

Mrs. Ryerson sponsored the ship, breaking the traditional bottle of champagne on its bow the moment the 7,000 ton hull slid into the water. A reception and lunch honoring Mr. and Mrs. Ryerson followed the christening and launching ceremonies.

Time: 4/10th Second

As long as four tenths of a second might elapse before a person could "unfreeze" after grasping an electrified fence, a safety session of the Winter General Meeting of the American Institute of Electrical Engineers was informed in New York on Feb. 2.

The report was made by an engineer who has studied electrical safety for many years, Prof. C. F. Dalziel, Department of Electrical Engineering University of California, Berkeley. His findings were the result of tests made on 32 men who previously had been examined by a physician from the University of California Medical School at San Francisco.

"How long will you be frozen to an energized wire after the circuit has been interrupted?" he asked. "Failure to utilize the correct answer in design might result in your being a victim the next time you inadvertently grasp an electric fence. Information on the probable length of time it takes a person to release his grasp of a wire after being subjected to currents above his let-go limit is important in establishing the minimum allowable 'off' periods for electric fences. . . . Death is to be an expected result should a victim suffer a sufficient number of shocks due to his inability to release his grasp of an electrified fence during the 'off' period between consecutive shocks."

Three of the 32 tested had a time delay of nearly 0.4 seconds before they could release the wire. The others ranged as low as slightly less than 0.1 second. The off period presently required for electrified fences is 0.75 to 1.0 second.

"This amounts to a factor of safety of approximately 2 based on 60-cycle freezing currents. This off period has been used for a number of years and is considered satisfactory because of the lack of reported accidents involving commercial fence controllers," he said.

McAfee is President Of the A. I. Ch. E.

Dr. Jerry McAfee, vice president, Manufacturing Department, Gulf Oil Company, Pittsburgh, has been elected 1960 president of the American Institute of Chemical Engineers (A.I.Ch.E.) it was announced in San Francisco on Dec. 7 during the 52nd Annual Meeting of the Institute in the Sheraton-Palace Hotel. The announcement was made by a committee of tellers that had been tabulating a mail ballot among the Institute's more than 18,000 members.

John J. Healy, Jr., a member of the Corporate Planning Group of Monsanto Chemical Company, St. Louis, was elected vice president, and Dr. J. Henry Rushton, of Purdue University, Lafayette, Ind., and Frank J. Van Antwerpen, of Nutley, N. J. were re-elected treasurer and executive secretary, respectively.

Directors named were: Donald A. Dahlstrom, director of research and development, the Eimco Corp., Palatine, Ill., Dr. Charles R. Wilke, chairman of the Chemical Engineering Department, University of California, Berkeley; Karl H. Hachmuth, engineering advisor to the vice president of research and development, Phillips Petroleum Company, Bartlesville, Okla., and W. K. Menke, vice president, Chemical Division, Pittsburgh Coke and Chemical Company.

Dr. McAfee, who is completing a term as 1959 vice president of A.I.Ch.E., joined Gulf Oil Company in 1945 at the company's Port Arthur refinery. He was named to his present position in 1954. He was graduated from the University of Texas with a bachelor of science degree in 1937 and three years later earned a doctor of science degree in chemical engineering from Massachusetts Institute of Technology. Following graduation he joined the Universal Oil Products Company.

Mr. Healy is a native of Boston. Mass., and before joining Monsanto in 1929 was on the engineering staff of the Merrimac Chemical Company, Everett, Mass. He was graduated from Harvard in 1919 with a bachelor of arts degree and received a master of science degree from MIT in 1921.

Dr. Rushton, a former president of A.I.Ch.E., has been treasurer since 1958. Mr. Van Antwerpen has been secretary of the Institute since 1955.

Letting the Cat Out of the Bag

If you tried working the little problem which accompanied the Membership Committee's page in the January issue of *Midwest Engineer*, you may not have arrived at the indicated answer. The page was entitled "What is written below is a pleasant challenge," showed a large cat looking over a picket fence, and began its message by saying "We are letting the cat out of the bag."

Well, we here at *Midwest Engineer* are letting something out of the bag, too. The problem was printed wrong!

The eighth and several following sentences should have read as follows: "The length of the rope (in feet) is equal to the age of the cat and the *weight of the cat (in ounces)* is as much as the age of the cat's mother. The combined ages of the cat and its mother are 30 years. The weight of the *mouse* plus one-half of the weight of the cat is one-quarter . . .

Our faces are red. We hope yours aren't blue.

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Overhead Air Hoists

Lightweight, heavy duty, overhead air hoists are now available from Gardner-Denver Company, Quincy, Ill., in both piston-motor and rotary-motor types.

Introduction of new rotary hoists for fast lifts complements the line of piston hoists manufactured by the company for use where fine positioning is necessary. Piston hoists are also more suited for use in corrosive atmospheres.

Most parts of the new 86R-10 and 86R-20 rotary-motor hoists are interchangeable with the company's piston-motor hoists, reducing necessary stock inventory, according to the company. The 86R-10 has a capacity of 1000 lbs. and lifts at a rate of 40 feet per minute. Lifting speed of the 86R-20, 2000 lbs. capacity, is 20 feet per minute.

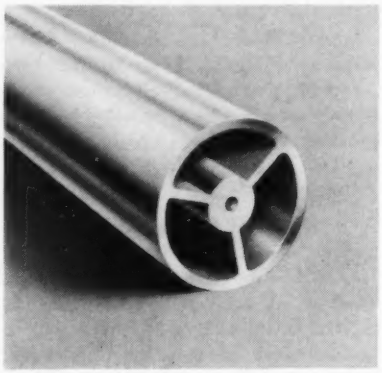
The new rotary hoists are designed for easy servicing. Gardner-Denver rotary hoists feature a dependable, easy-to-service external muffler.

Standard equipment on the new hoists includes a safety suspension hook, safety load hook, roller chain or link chain for 8 feet of lift, rope control, swivel air inlet, air strainer and safety stops. Chain for 10 feet of lift and safety cable and clamps for secondary safety suspension are optional.

Also available as extra equipment are extra chain, pendent control, chain basket, hoist trolley, two- and four-wheel hose trolleys, spark proof roller chain and hooks, air line filter, lubricators and regulators.

Hollow Extrusion

Unusual for magnesium alloys is a four hole integral hub and rim type hollow extrusion being used for low-inertia, lightweight reciprocating recording drums. Produced by White Metal Rolling & Stamping Corp., Brooklyn, N.Y., the stiffness advantage at a



minimum weight or inertia of magnesium alloys together with their free sliding, non-smudging and excellent etching characteristics present many possibilities in drums, spool and recording cylinder applications.

The free machining characteristics of magnesium combined with the obvious efficiency of hollow shape structures of this type make many economies possible.

In a similar manner multiple hole hollow shapes of magnesium alloys are available for compound conduit applications or as integral stiffeners for special tubular frames or structures.

Further information, literature, etc., available from The White Metal Rolling & Stamping Corp., 92 Moultrie Street, Brooklyn 22, New York.

GBC Combo

The new GBC 12-inch Combo, a portable machine that combines both punching and plastic binding functions in a single, convenient desk-top model, has been introduced by General Binding Corporation, Northbrook, Ill.

Designed especially for offices and plants where binding volume may not require a full line of power equipment, the Combo offers a quick, economical method of binding a great variety of paperwork projects, including accounting and personnel records, sales presentations and literature, business reports, technical data, catalogs, booklets and manuals.

A specially engineered cam action enables the operator of the machine to punch a "lift" of paper with a simple down-stroke of the Combo's lever. Then another swing of the handle attaches the plastic binding. The operation is so simple that it can be explained to anyone in a minute or two.

There are two knob controls on the side of the Combo. One regulates the indentation of the punched holes from the edge of the paper. This margin is determined by the size of the plastic binding to be used. The other knob controls the spread of the binding fingers so that they will properly accommodate the amount of paper to be used in the binding operation. One of the many advantages of plastic binding is that pages lie flat and turn easily. This makes it feasible to print copy on both sides of the paper rather than one side. Moreover, the Combo assures sharper punch-

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ing near the edge of the paper, allowing smaller binding margins than those required for side-stitching. Because of these space-saving features, the number of pages needed for each book can be greatly reduced, adding to the economy of the binding operation.

The GBC Combo was designed to sell for less than $200. It is expected to be especially useful for companies which need binding service in several departments or branch offices.

For further information about the GBC Combo, please write to Advertising Manager, General Binding Corporation, 1101 Skokie Highway, Northbrook, Ill.

Infra-red Heaters

Summertime comfort in outdoor areas that could never before be heated is now possible with new Perfection-Schwank 'Marque' gas infra-red heaters introduced by Perfection Division, Hupp Corporation.

The heaters provide a simple and inexpensive way of preventing snow accumulation on sidewalks or other traffic areas even with heavy snowfall. Btu requirements are based on recommendations for snow melting established by the American Society of Heating, Refrigeration and Air Conditioning Engineers.

Suggested areas of application include marquees and sidewalks, loading platforms, patios and swimming pools, drive-in restaurants and banks, shopping center walkways, bus and railroad station platforms, airport boarding areas, grandstands and racetracks—anywhere people congregate in exposed areas.

Infra-red rays generated by the Marque heater, like light rays, are easy to direct and control. They can be concentrated on specific areas without heating the surrounding air to provide an immediate sun-like feeling of warmth no matter what the air temperature in the immediate vicinity.

Fired by natural, L.P., mixed or manufactured gas, the model JM-524 heater is rated at 48,000 Btu per hour. Wind shielding is assured by a weatherproofed casing finished in architectural gray porcelain enamel, deep parabolic reflectors and protected location of pilot. The heater utilizes a directional and protective aluminum honeycomb screen on its reflector to produce a concentration of heat. To increase infra-red output full nichrome wire screens are used on burners, and both electric ignition and pilot filter are standard equipment. Heaters are mounted with convenient two-point suspension and weigh approximately 68 pounds.

Further information can be obtained from the manufacturer, Perfection Division, Hupp Corporation, 1135 Ivanhoe Road, Cleveland 10, Ohio.

Fuse Clips

A wide variety of spring and fuse clips and lock washer terminals are now available from stock for quick deliveries by Zierick Manufacturing Corp.,



New Rochelle, N.Y. The new additions to the line round out the company's complete range of stock lugs, clips, terminals, metal stampings, wire forms and other types of electrical parts.

The new lock washer terminals are manufactured with #4, #6, and #8 holes from .018 brass or phosphor bronze, hot tinned.

An illustrated catalog sheet, sample kits and prices are available from Zierick Manufacturing Corp., 110 Beechwood Avenue, New Rochelle, N.Y.

Literature

Coil Catalog

The Young Radiator Company, Racine, Wis. announces release of a new coil catalog. It contains complete information on all water and direct expansion refrigerant coils. The 27-page, 2-color catalog includes water, direct expansion and booster coil specifications. Exclusive construction features are covered.

The completely new catalog includes selection of water heating and cooling coils, physical and performance data charts, mean effective temperature difference chart, determination of final dry bulb temperature and direct expansion coil surface temperatures, selection of direct expansion coils, direct expansion cooling coil capacity tables, and psychrometric chart as well as total heat table.

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Metal Lathing

A complimentary 20-page booklet entitled "Specifications for Metal Lathing and Furring," may be obtained by writing to the Metal Lath Manufacturers Association, Engineers Building, Cleveland, Ohio.

This valuable booklet contains: fire-resistive ratings; design tables; and specifications for hollow partitions, solid partitions, sound insulating partitions, ceilings, vertical furring, and centering.

Sections relating to materials and corner joint reinforcement are also included.

A popular reference piece in the architectural and construction fields, this booklet covers all popular phases of metal lath construction.

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"Study of Man's Work," Unexplored Area

The study of man's work through the ages is one of the great unexplored areas of human history, the noted scholar, Peter F. Drucker, declares in the first issue of the new journal, *Technology and Culture*, published on Jan. 15.

The new quarterly journal is the official publication of the Society for the History of Technology and is edited by Dr. Melvin Kranzberg, professor of history at Case Institute of Technology where the society has its headquarters.

Work, in the terms of Dr. Drucker's definition is, "The specifically human activity by means of which man pushes back the limitations of the iron biological law which condemns all other animals to devote all their time and energy to keeping themselves alive for the next day, if not for the next hour."

Dr. Drucker, who is a professor at New York University adds, "Systematic attempts to study and to improve work only began some 75 years ago with Frederick W. Taylor. Until then, work had always been taken for granted by everyone—as it is still apparently taken for granted by most students of technology. Today we are beginning to see yet another powerful consequence of Taylor's work on individual operations, the change from organizing production around the doing of things to organizing production around the flow of things and information, the change we call 'automation'."

Fatigue Studies

Industrial psychology and industrial physiology have also begun the systematic study of work. Fatigue studies were among the earliest of these studies and studies of sensory perception and reaction as in the case of the airplane pilot are presently the most active areas of investigation. But Dr. Drucker says, "We have barely scratched the surface here; yet we know already that these studies are leading us to major changes in the theory and design of instruments of measurement and control and into the redesign of traditional skills, traditional tools and traditional processes.

"But of course we worked on work long before we systematized the job. The assembly line is a concept of work as was understood by those unknown geniuses who replaced the aristocratic artist of warfare—the heroes of Homer—by the army soldier with his uniform equipment, his few repetitive operations and his regimented drill.

The best example of human engineering is still the long handle that changed the sickle into the scythe, thus belatedly adjusting reaping to the evolutionary change that had much earlier changed man from a crouching four-legged creature into an upright two-legged one.

"The aspect of work that probably had the greatest impact on technology is the one we know the least about: the organization of work." However, Dr. Drucker adds, "If we know far too little about work and its organization scientifically, we know nothing about it historically. One example of this is the lack of attention given to materials moving and materials handling equipment. We know that moving things rather than fabricating things is the central effort in production.

"It is just possible," Dr. Drucker concludes, "that work might provide the focus for our study of technology. It might provide the one unifying concept which will enable us to understand technology both in itself and in its impact on and its relationship with values and institutions, knowledge and beliefs, individual and society.

Among the other contributors to the first issue of *Technology and Culture* is Cyril S. Smith of the University of Chicago. He reports on a modern metallurgical study of ancient chain mail which reveals the methods used in making this form of armour. Robert P. Multhauf of the Smithsonian Institution, in another article discusses the changing relationship between science and engineering.

In the introductory article, Dr. Kranzberg traces the history of the society, and explains the values of the organized study of technology in our modern age. He stresses the fact that one of the objectives of the society is to make its study of technology available to the educated citizen.

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The Profession of the City Planners

Mr. Paul Oppermann, executive director of the Northeastern Illinois Metropolitan Area Planning Commission, spoke on the above topic on Dec. 16, 1959 before the Civic Committee of the Western Society of Engineers. The following is an excerpt of Mr. Oppermann's talk.

"No doubt there have been many times when you have thought that the politicians have arrived at a wrong conclusion on a more or less technical project. I have concluded that probably one of the reasons this has happened is because the professional people who give advice on these projects have not agreed and have given diverse advice. If all the professional people worked together, I believe it would be very difficult for politicians to arrive at an irrational conclusion. That is why I think that committees such as this are able to do much good if they lend their concerted approval to a project.

"I would like to talk tonight a little bit about the profession of City Planners. We planners differ probably from other engineers in that we take more of the total approach to a project. Actually, I became a City Planner because I had seen too much property botched up by piecemeal development and thought that much needed to be done in planning to prevent this happening in the future. You cannot plan a house, you have to plan a street; you cannot plan a street, you have to plan a development; you cannot plan a development, you have to plan a village or city; you cannot plan a village or city, you have to plan a metropolitan area.

Profession Relatively New

"The profession of City Planners is relatively new. At the present time, there are twenty-five universities which teach City and Regional Planning. To meet the needs of the country, we would need about 900 City Planners a year. At present, about 300 a year are graduating.

"Now I would like to give you some of my ideas about planning in this Northeastern Illinois Metropolitan Area.

"I have long believed that U. S. cities put their worst foot forward. Any time you enter a city on a railroad or enter its highways, you usually pass through the worst sections of the city. Every visitor to Chicago says it is terrible; they would never want to live there. But have they visited the beautiful spots of Chicago, such as the lake front, its parks, its museums?

"The flatness of Chicago is a big handicap for it to overcome in its striving to be a beautiful city. However, it can be done, as can be seen from the development of the lake front. Better housekeeping in all areas would be a good starting point.

Holland an Example

"Holland is an example of what can be done with flat country. It is as flat as a pancake, but is probably as beautiful as any place in the world. Of course, it has taken several centuries to achieve this effect, but if they can do it, I believe and have high hopes that Chicago can do the same.

"In my lifetime, I have seen the development of freeways, hospitals, skyscrapers, etc. If these are possible, there is no reason why with proper planning and determination we should not be able to make Chicago beautiful.

"We can do it. We know how, but as yet, we have not developed the plans. I believe that to accomplish this, the businessmen need to develop the desire. They then have to obtain help from planners and then have to convince the politicians of the need. We must all get together. It must be a bi-partisan project. It can be done. For example, take Pittsburgh. It was in much worse shape than Chicago but they have done a very good job there.

"I would like to speak a little about our Commission. It is the first and biggest in the country. It is way ahead of anything that New York or Los Angeles have. And I would like to give considerable credit for its organization to the late Mr. Earl Kribben, who was our first Chairman.

"How our Commission came into being is a credit to all of the businessmen and organizations who fought for it and to all newspapers and politicians. Our Commission could probably have been stopped if we had been opposed by any one newspaper or any one powerful politician.

"Here is an example of what we have done so far. First, we have recruited a staff of eighteen or nineteen men. Second, we have compiled a library of maps, reports, surveys, etc. Third, we are presently making soil usage studies. Fourth, we have working committees in two fields—flood control and drainage, chairman, John Logan, and water supply and sewage, chairman, Gilbert White.

"The men on our committees are top leaders of City, County, State and Federal agencies and prominent businessmen. This is probably the first time that these men have all gotten together on a Commission project. They have found that working together it is easier to plan on a metropolitan area basis than on small segments.

"Before we could begin our planning, we found that much of the basic data

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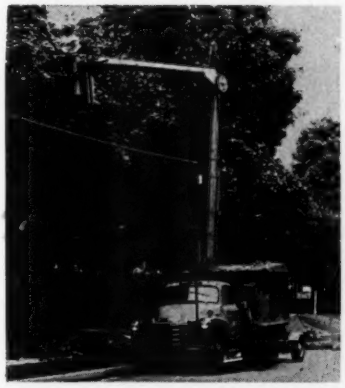
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we needed was not available anywhere, so one of the first things that we have to do is to obtain this basic data. As a basis for our planning, we need data on — first, population growth; second, transportation—we must find the balance between auto usage and public transportation; third, land usage — whether our land should be used for industry, commerce, residential, or remain as farmland; fourth, our residential needs—we know we will have 3,000,000 more people in our area within the next twenty years—this is equivalent to what Cleveland did in 100 years; fifth, we need to know something of the structuring of communities.

"As a concluding prognosis, I would like to say that first, regional planning must only grow stronger. It is only through adequate planning that we can grow in any kind of logical and economic manner. The newspapers have recognized this and have lent us their support. Second, here in Chicago we can offer a very favorable economic and geographic location. There is no doubt that people will make money here in the Chicago area in the future. But will it be worthwhile living here? Planning may make the difference."

Engineers Week February 21-27

Thirteen leading engineering figures will act as sponsors for the 1960 National Engineers' Week, Feb. 21-27.

They are: Wernher von Braun, director, Development Operations Division, Army Ballistic Missile Agency; Allen B. DuMont, chairman of the board, Allen B. DuMont Laboratories, Inc.; T. Keith Glennan, president-on-leave, Case Institute of Technology, and administrator, National Aeronautics & Space Administration; James R. Killian, Jr., chairman of the Corporation, Massachusetts Institute of Technology; Clarence H. Linder, vice president, General Electric Company; Granville M. Read, chief engineer, E. I. du Pont de Nemours and Company; Royal W. Sorensen, California Institute of Technology; Philip Sporn, president, American Electric Power Company; David B. Steinman, consulting engineer; Bertram D. Tallamy, Federal Highway Administrator; Charles Allen Thomas, president, Monsanto Chemical Company; John L. Burns, president, Radio Corporation of America, and A. V. Wiebel, president, Tennessee Coal & Iron Division, United States Steel Corporation.

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The soaring roof lines and huge expanses of glass at the Airport Terminal Building, St. Louis, were made possible by the use of shell concrete.

Unexpected Travel Sights

Some of the most interesting sights to attract the attention of travelers today are found unexpectedly in new structures along the way.

Motels, filling stations, restaurants, churches, stores and other types of buildings are appearing in such unusual shapes as three-cornered domes, inverted umbrellas and wine glasses, or with roofs folded in accordion pleats or curved in two directions. Responsible for this architectural variety is a relatively new type of construction in this country called reinforced shell concrete.

Plane travelers landing at Lambert Field, St. Louis, see an outstanding example of shell concrete in the airlines terminal building there. Designed by Minoru Yamasaki, the 412-ft. long building is composed of three sets of intersecting barrel shells which provide not only ample interior space unimpeded by columns but also a superb view of the landing field through floor-to-ceiling windows.

Idlewild Airport in New York is another terminal building that has been compared to a soaring gull. Part of architect Eero Saarinen's aim in designing the building was to have it express the excitement of travel. Two wings of the building are built of shell concrete flared outward in such a way that they suggest the poised wings of a giant bird. The bubble-shaped Kresge Auditorium at Massachusetts Institute of Technology by the same architect is one of the first and best-known structures of shell concrete in this country.

Thirteen miles south of Venice, Fla., on U.S. 41, motorists come upon what appears to be a collection of intriguing square umbrellas. This is the Warm Mineral Springs Inn, a motel designed by architect Victor Lundy using a series of concrete shells mounted on concrete stems. Two different heights set the umbrellas apart. The space between is filled with glass to provide clerestory lighting.

Shallow cones top 21 columns like a series of giant champagne glasses at the Ida Cason Callaway Gardens on U.S. 27 at Pine Mountain (Chipley), Ga. The concrete shapes are grouped together to form an open-air dining pavilion. Bright pennants and striped walls on adjoining buildings contribute to an unusual and festive setting.

One reason for the popularity of shell concrete is the variety of designs it makes possible. It utilizes the same principle shown in nature in an egg shell, which because of its curving surface can withstand a surprising amount of pressure without breaking. Architects today are no longer restricted to rectangular shapes, but can obtain sculptural effects and symbolic forms resulting in many exciting, unusual and beautiful structures.

Motorists traveling along the Illinois Toll Road are generally startled to see an attractive restaurant astride opposing lanes of traffic. Five such "Oases" are provided at strategic spots, and diners can watch traffic approach and disappear underneath the building in which they enjoy their meal. The same type of prestressed concrete girders support the restaurants as were used for 217 overpass bridges on the Toll Road.

Prestressed concrete is also relatively new to this country. In the process, steel reinforcing cables are stretched and anchored, placing the concrete in a "big squeeze." This technique creates girders of great strength capable of long unsupported spans. When designs are standardized, as they were for the Illinois Toll Road bridges, and units cast at a central plant, considerable cost savings are possible.

Something new in filling station design has proved to be a drawing card for motorists at Haysville, Kansas. The soaring lines of the roof are of shell concrete in the form of a hyperbolic paraboloid. Many unusual shapes are appearing in this material.



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C-7864 CHIEF MICROPHONE ENGR. College Degree age to 50; 3 yrs. exper. working with microphone or audio engrg. field. sal. $10,000 loc. Ill., employer will pay the fee.

C-7865 PLANT MGR. EXTRUDED PLASTIC FILM Pref.Grad. age to 40; Polyethylene extruders, dies, casting machines, slitting & slitters. Exper. in working with MRM extruders, MPM slot dies. Polyethylene, vinyl & high density films are of concern now. Knowl. of handling & packaging eqpt. since the film is packaging film. Knowl. of material handling (both bulk & roll) covering containers, conveyors, case sealers, etc. Background in indust. engrg. incl. time study, work simplification, job evaluation or production control. Will supv. all functions of plant employment of abt. 75. Plant is planned for top production of 3,000,000 lbs. of film annually & will be fully eqpt. within a year, sal. up to $12,000+ moving, loc. Ill., employer will pay the fee.

C-7866 (A) ELECT. ENGR. Grad. from accredited school 2-4 yrs. exper. pref. some background in power & light, distrib., writing specs. for elect. motors, controls, etc. for indust. motor drives. knowl. of both AC & DC distrib. acquaintance with city of Chgo. Elect. Code. Acquaintance with class 1 Group D elect. eqpt. Economic eval. of best power & light distributing systems. Duties: Prepare cost estimates of plant expansion program concerning motors, power eqpt., distribution system both AC & DC. Upon authorization, perform necessary elect. engrg. work on same. Review present Power House operation vs. future generation and/or purchased power. Analyze present production failure, elect. eqpt. & present programs. Plant covers several bldgs. approx. 843,000 sq. ft. Help to devel. modern program of instrumentation for a mfr. of window shades, wall coverings & plastic coated products, loc. Chgo. sal. to $650 employer will pay the fee.

C-7867 PRODUCT DESIGN & DEVEL. ENGR. Grad.Engr. 1+ yr. in design & devel. engrg. Duties: Product design & devel. on gas burners, valves, thermostats & controls sal. up to $650 mo. dep. on exper. loc. Chgo. employer will pay the fee.

C-7870 CIVIL ENGR. BSCE or San. Engr. age 35 or over; 10 yrs. exper. design of water & sewerage facilities; municipal projects, know civil engrg. & san. engrg., surveying. Duties: Will be resp. for the mgmt. of civil engrg. dept. in one of company's branch offices. Will supv. the work of other engrs. & be capable of contacting municipalities & the public in the promotion of new work, travel, car req'd for a consulting engrg. firm. sal. $10,000 or more, loc. West. Ill. employer will pay the fee.

C-7873 MINING ENGR. Grad. Recent grad to 3 yrs. exper. Duties: Mining engrg. on deep mines. Good opportunity

ENGINEERS AVAILABLE

1030-MW: CHIEF SANITARY ENGR. BS-MSCE 55; For consulting engrg. firm, fully versed in all phases of design of sewerage, sewage treatment & water purification facilities & related projects. Min. salary $12,000, available immediately. Mid-West or East.

1031-MW: MECH. ENGR. BSME-MBA June '60; 32; desires smaller organization where exper. & training will be of value. 2 yrs. machine shop, 6 yrs. project engr. & research design, devel. installation operation—food processing eqpt.

1033-MW: METTALLURGIST BS-Met. Engr. 37; 12 yrs. supv. exper. in most phases of ore-dressing production, development & research. Significant mgmt. & administrative exper., domestic & Latin America.

1038-MW: PROJECT ENGR. DESIGNER BS-MSCE 33; 2 yrs. as resident engr. & field engr. on highway bridge & other public works projects. 3 yrs. structural design & specs. for bridges & bldgs. of steel, reinforced concrete & timber. PE Mo.

to get exper. & grow with an outstanding continuous mining program. Company is planning an expansion program & has enormous deep mine reserves in Ind. & West Ky. sal. $550/650 mo. dep. on exper. hdqr. Ind.

C-7880 INDUSTRIAL ENGR. Grad. IE 1+ yr. exper. in gen'l. engrg in needle trades. Duties: Indust. engrg. incl. time study, methods, standards rate setting etc. for mfg. of corsets & girdles sal. $6500/7500 loc. Chgo. employer will pay the fee.

C-7890 MECH. ENGR. degree age to 35; 0-10 yrs. exper. Knowl. of industrial plants helpful, Duties: Plant studies, modernization plant layout, etc. car req'd. for a consulting engr. sal. $6/8,000 loc. Chgo. employer will negotiate the fee.

Pedal Pusher

Man in space—far from being a pampered master of push-button slaves—may wind up cranking or pedalling away to supply power to operate devices in his rocket ship. This was the implication of a paper presented at the Annual Meeting of The American Society of Mechanical Engineers at the Haddon Hall Hotel in Atlantic City, N.J.

Ezra S. Krendel, head of the engineering psychology branch of Franklin Institute, Philadelphia, in a paper scheduled for presentation on Nov. 30, said that a human passenger in a space vehicle may have to supply some of his own power in order to save the weight and space needed for other power sources such as batteries.

Mr. Krendel's interest in "man-generated-power," the title of his paper also stems from military needs for equipment that can be operated by hand if other power sources fail. His paper described various methods of determining the most efficient way to design a machine for hand (or foot) operation.

In his paper, Krendel noted that one valuable source of experimental information on human ability to maintain sustained pedalling effort, is a group of writings in German which resulted from efforts during the 1920's and 30's to produce a "flying bicycle"—a propellor driven aircraft powered by the flyer's feet. A similar device called an "ornithopter" was sketched by Leonardo de Vicni some 450 years ago.

Calendar of Engineering Events

Feb. 17, Wed., WSE Noon Luncheon Meeting, 12:00 noon, WSE Hq.

Feb. 18, Thurs., WSE Speaker and Paper Group, 12:00 noon, WSE Hq.

Feb. 23, Tues., WSE General Meeting. Social Hour, 5:15-6:15 p.m.; Dinner, 6:30 p.m.; Technical Sessions, 8:00 p.m., WSE Hq.

Feb. 24, Wed., ASME Noon Luncheon Meeting, 12:00 noon, WSE Hq.

Feb. 25, Thurs., WSE Speaker and Paper Group, 12:00 noon, WSE Hq.

Feb. 29, Mon., Washington Award for 1960. Reception, 5:30 p.m.; Dinner, 7:00 p.m.; at The **Furniture Club of America,** 667 N. McClurg Court.

Mar. 2, Wed., WSE Noon Luncheon Meeting, 12:00 noon, WSE Hq.

Mar. 3, Thurs., WSE Speaker and Paper Group, 12:00 noon, WSE Hq.

Mar. 9, Wed., WSE Noon Luncheon Meeting, 12:00 noon, WSE Hq.

Mar. 10, Thurs., WSE Speaker and Paper Group, 12:00 noon, WSE Hq.

Science's Forward Advance

In at least one instance, the forward march of medicine requires a few steps backward. Or so it would seem from a report made in New York on Feb. 2 at the Winter General Meeting of the American Institute of Electrical Engineers.

A session on electronics in medicine was told that the "mouth to mouth" method of artificial respiration, which today is considered the most effective "manual" procedure by medical science, was used as long as 3,000 years ago by the Hebrew prophet Elisha. During the intervening years a number of other manual methods have been employed, one of which, the "back pressure arm lift," was used from 1956-58 by electric utility companies in cases of respiratory failure due to electric shock. Since these other methods have come in for criticism because of the difficulty of maintaining "a patent airway" to the victim's respiratory system, the ancient "mouth-to-mouth" way is now generally recommended.

Comment on the various methods of artificial respiration came in a paper, "Field Treatment in Electric Shock Cases," by W. S. Kouwenhoven, G. G. Knickerbocker, Dr. W. R. Milnor and Dr. James R. Jude, all of the staff of the School of Medicine, The Johns Hopkins University, Baltimore, Md.

The four men also reported on a new method for saving lives of those who suffer "cardiac standstill" (in which the heart stops pumping blood), suffered as a result of electric shock. Called "closed heart massage," it has been used successfully on dogs and some hospital patients and "gives every indication" of being a "safe and effective" procedure. The method calls for providing blood circulation by forcefully compressing the chest. Its advantages lie in reducing the need for surgically opening the chest to massage the heart—a benefit which would be particularly important in field cases where surgery is difficult—and in providing precious extra minutes in which heart stimulating equipment can be rushed to the victim.

Power Conference

The 22nd Annual Meeting of the American Power Conference will be held at the Sherman Hotel in Chicago on March 29, 30 and 31, 1960. The three day meeting will include some 95 papers and addresses devoted to all aspects of the power industry. A highlight of the technical program will be an Evening Forum devoted to unconventional methods of generating power. Included will be a discussion of Magnetohydrodynamics, Isotopic Heat and Power, The Fuel Cell, and the Nuclear Rocket Program.

In Memoriam

The Western Society of Engineers has been notified recently of the deaths of the following members:

Vernon L. Davies ('19, LM), died on Dec. 23, 1959.

Henry C. Beal ('29, LM), died on Dec. 31, 1959.

Knight D. Farwell ('51, M), died on Jan. 8, 1960.

Ernest A. Carlson ('46, M), died on Jan. 10, 1960.

Max R. Boye ('32, M), died on Jan. 25, 1960.

News of Engineers

or: Personals of Personable People

Louis R. Howson, a Western Society past president and prominent Chicago consulting engineer, was named the "Chicago Civil Engineer of the Year, 1959" by the Illinois Section of the American Society of Civil Engineers.

Mr. Howson, a past president of the national society, was cited for "excellence in his profession, leadership in the society, and for his humanities."

A University of Wisconsin graduate, Mr. Howson is senior partner of the Chicago consulting firm of Alvord, Burdick and Howson. He is a registered engineer in 30 states.

•

The Board of Directors of Trundle Consultants, Inc. of Cleveland, New York, and Chicago have elected Marshall Dyer vice president and a director of the company, it was announced by Robert C. Trundle, president.

Dyer joined the company in 1955, as assistant to the president.

Previous to that, he was vice president in charge of operations of Dyer Engineers, Inc. From 1944 to 1946 he was chief industrial engineer of Pipe Machinery Co., of Cleveland. Earlier in his career he was associated with Northrop Aircraft, Inc. and Warner and Swasey Co.

Dyer attended Harvard University and the University of Arizona. He is a member of the American Management Association, the Society for the Advancement of Management and the Cleveland Engineering Society.

Trundle Consultants is one of the oldest management consulting firms in the country. Its engineers operate in the field of manufacturing, finance, management, industrial relations and marketing.

•

James E. Duffy, former assistant chief engineer at South Works and later at Gary Works of United States Steel, has returned to South Works as chief engineer. Announcement of the appointment was made Jan. 13 by Charles J. Hunter, general superintendent at South Works.

He succeeds the late Kenneth E. Dinius.

Duffy will assume the responsibility for the direction of the engineering staff for the 13,000-man plant.

A native of Homestead, Pa., Duffy attended Youngstown, Ohio, College. He began his U. S. Steel career in 1935 as a testman in the Youngstown, Ohio, works and became an engineer in the power and fuel department in 1939.

From 1944 to 1946, Duffy served with the Marine Corps in the Pacific. He resumed his career at Ohio Works and served in various engineering capacities until 1955 when he was made liaison engineer in Pittsburgh.

He was appointed assistant chief engineer at South Works in 1956 and to the same post at Gary Steel Works in September, 1958.

Duffy and his wife, Elizabeth, and four children, Sheila, Patricia, Dennis and Barbara, live at 636 Argyle Ave., Flossmoor.

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Officers of the Electric Association of Chicago were all re-elected for another term at the first meeting of the Board of Directors for 1960, held December 18. Succeeding themselves are George M. Bard, Kelso-Burnett Electric Company, president; Edward F. Anixter, Englewood Electrical Supply Company, vice-president; Western Society Member **Richard Wessling,** Allen-Bradley Company, treasurer, and C. C. Simpson, managing director of the Association, secretary.

Elected to the seven-member executive committee additionally to officers, who are members ex officio, are WSE Member **Myron Lukey,** Commonwealth Edison Company; Emil de Haan, Service Electric Company; C. V. Roseberry, Westinghouse Electric Corporation, and C. B. Thorsen, Day-Brite Lighting, Inc.

The Electric Association, now in its 35th year, is an association representing the electrical industry in the Metropolitan-Chicago area.

•

Sargent & Lundy, Chicago consulting engineers, have announced a number of year end changes in their partnership and organization.

WSE Member **Andrew R. LeBailly,** partner and chief engineer, reached retirement age and resigned from the partnership effective December 31, 1959. Mr. LeBailly, who completed over 32 years of service with the firm, was admitted to the partnership in 1948 and had served as chief engineer since 1954.



LeBailly Schroeder

The position of chief engineer has been filled by **H. C. Schroeder,** MWSE, partner and former chief mechanical engineer. Mr. Schroeder has been with the firm since 1936 and has been a partner since 1948.



McMeen Walsh

WSE Member **Harry H. McMeen** has been named to succeed Mr. Schroeder in the chief mechanical engineer position. Mr. McMeen, a partner since 1951, has over 21 years of service.

John J. Walsh, another Western

Society member, mechanical engineer, was admitted to the partnership effective January 1, 1960. Mr. Walsh, a graduate of Northwestern University, started with the firm in 1947 and was appointed to the position of associate in 1956.

In other action, Robert W. Patterson, a member of the firm's mechanical engineering staff since 1947, was appointed to the position of associate.

•

John F. Probst has been elected president of South Bend Lathe, Inc., a subsidiary of American Steel Foundries, it was announced by Joseph B. Lanterman, ASF president.

Probst succeeds Russel E. Froushour who is retiring. The change became effective January 1, 1960.

Mr. Frushour, president of the South Bend company since 1939, will remain a director as well as a consultant. Mr. Frushour joined South Bend Lathe in 1923.

Probst joined South Bend in 1946. He was elected assistant vice president in 1955 and vice president in 1959. He is a director of the company.

Lanterman announced that Richard S. Anderson will become secretary-treasurer of South Bend Lathe, also effective January 1, 1960. He replaces Maurice Howard who is retiring. Mr. Anderson is presently Controller.

Mr. Howard joined South Bend Lathe in 1937.

South Bend Lathe was acquired by American Steel Foundries June 12, 1959. The South Bend company makes precision metal-working lathes and other machine tools and accessories. About 500 people are employed in its South Bend plant.

ASF produces components for railway rolling stock, machine tools, precision roller chains and sprockets and steel castings for industrial and other uses. The company also coats and wraps steel pipe for the oil and gas industries.

In addition to South Bend Lathe, its subsidiaries are Diamond Chain Company, Inc., Indianapolis; Pipe Line Service Corporation, Franklin Park, Ill.; Griffin Wheel Company, Chicago; and Griffin Steel Foundries Ltd., St. Hyacinthe, Canada.

ASF operates 26 plants in 15 states and Canada.

•

Dr. Lawrence W. Von Tersch, head of the electrical engineering department at Michigan State University, has been elected president of the National Electronics Conference for 1960.

Other officers named for the next NEC, which will be held in Chicago at the Hotel Sherman on October 10, 11, and 12 are:

Executive vice president, Joseph J. Gershon, DeVry Technical Institute; secretary, James H. Kogen, GPE Controls, Inc.; treasurer, Dr. Harold E. Ellithorn, University of Notre Dame; assistant Treasurer, Robert J. Parent, University of Wisconsin.

Dr. Von Tersch, a long-time and active participant in NEC committee work, and formerly vice president of NEC, represents Michigan State University in Conference functions. He is a senior member of the Institute of Radio Engineers, is a graduate and received his Ph.D. from Iowa State College.

•

LeRoy A. Wickstrom of Chicago, an instructor in industrial engineering at Illinois Institute of Technology and associate analyst in engineering economics research at Armour Research Foundation, has been appointed secretary of the National Conference on Industrial Hydraulics.

Wickstrom spent seven years with the Oscar Mayer Company as a supervising industrial engineer. He received his B. S. degree in economics from the Swedish University of Commerce, Helsingfors, Finland, and an M. S. in industrial engineering from IIT. He expected to receive his Ph.D. in industrial engineering from IIT in January, 1960.

In addition to his new appointment as NCIH secretary, Wickstrom, who succeeds Ray Meade, is also conference director for "New Ideas 1960," an industrial management engineering conference co-sponsored by Armour Research Foundation and Illinois Tech.

•

J. Weaver Welch, president of General Trading Company has been awarded two plaques for outstanding service on behalf of Rust Oleum Corporation of Evanston, Illinois.

Presentation of the plaques was made at General Trading headquarters at St. Paul by V. J. Barton, of Rust Oleum.

The first was the gold Royal Scot award in recognition of 15 years as a Rust Oleum distributor, and the second was the silver Royal Scot award for outstanding sales achievement.

General Trading Company, a division of H & B American Corporation, is one of the largest companies that distributes automotive, agricultural, and industrial equipment throughout the north central states. Rust Oleum manufactures rust preventative industrial paint.

•

A series of promotions and transfers of engineers has been announced by Illinois Bell Telephone Company as part of a statewide staff reorganization.

W. C. Giller, dial equipment engineer, was promoted to the newly created position of Midstate Division engineering manager while M. R. Sproul, Chicago Area staff and personnel engineer, was transferred to the new office of North Shore division engineering manager.

In other staff changes:

William B. Dehr, central office program engineer for State Area, was promoted to outside plant and transmission engineer.

Richard A. Wetzel, cost studies engineer, State Area, was promoted to plant engineer.

Francis A. Starbuck, maintenance engineer, State Area, was transferred as Downstate Division engineering manager.

Alfred J. Mitchell, equipment engineer, State Area, was transferred as Upstate Division engineering manager.

The company recently formed a separate staff to carry on telephone operations in the Chicago suburbs because of tremendous shifts and developments of population and industry in that area.

•

Combustion Engineering, Inc. has announced the appointment of Robert A. Niemi to the post of director of manufacturing. In his new position Mr. Niemi assumes full responsibility for manufacturing, purchasing, production planning and industrial engineering and will report to the president, Mr. H. G. Ebdon. Mr. Niemi held executive positions in the business machine and automotive fields before joining the Combustion organization early this year.

•

James E. Brown has been named manager of operations for the Chicago district of U. S. Steel's American Steel and Wire Division, it has been announced by H. L. Jenter, vice president - operations for the Division. He succeeds

Nelson W. Dempsey, who retires after 42 years of service.

Brown has been vice president and general manager of the Division's Cyclone Fence Department. In his new post, he will supervise all American Steel and Wire operations in the Chicago district, including those of Cyclone Fence.

Born in Cleveland, Brown was educated in public schools there before attending King College in Bristol, Tenn. He also attended the advanced management training course at Harvard University.

A veteran of nearly 30 years in the wire industry, Mr. Brown began his career with the American Steel and Wire Division in 1930 as a weigher at Newburgh Works in Cleveland.

Brown's early years at Newburgh Works included jobs as tester, wire drawer and observer. In 1936 he was appointed a foreman in that plant and one year later was promoted to general foreman.

In 1942 he was transferred to Cuyahoga Works in Cleveland as a general foreman and two years later was made the assistant chairman of the Wire and Finishing committee in the Wire Division's Cleveland headquarters.

Brown returned to Newburg Works in 1945 as superintendent and two years later was elevated to the post of assistant to the operating vice president of American Steel and Wire.

Two years later, Mr. Brown was appointed assistant general superintendent at Cuyahoga Works and in 1950 was made the general superintendent at Waukegan Works.

On October 12, 1956, he was promoted to the top post at Cyclone Fence, with headquarters in North Chicago, Ill.

Active in community life, Mr. Brown is a former president of the Waukegan-North Chicago Chamber of Commerce and a former board member of the Waukegan Community Fund. He was also on the Board of Governors of the Glen Flora Country Club and a member of the Waukegan Elks Club.

•

Appointment of Louis S. Oosten as vice president in charge of engineering for Bell & Gossett Company, Morton Grove, Ill., was announced by R. E. Moore, president.

Oosten, who formerly was plant superintendent, succeeds Harold A. Lockhart who passed away recently.

Mr. Oosten joined Bell & Gossett in 1934 as a machine operator. He was made a member of the engineering staff in 1935, and from 1942 to 1953 was assistant to the chief engineer. He was promoted to plant superintendent in 1953.

He is a graduate of the Illinois Institute of Technology where he received his bachelor of science degree in mechanical engineering in 1949. He also did graduate work in mechanical engineering at Northwestern University.

He is a past member of the American Society of Mechanical Engineers and the American Society of Heating and Ventilating Engineers.



In accordance with Article 1, Section 5 of the By-Laws of the Western Society of Engineers, there is published below a list of applicants for admission received since the last issue of the MIDWEST ENGINEER *magazine.*

Russell V. Evans, Indust'l. & Com'l. Engrg. Serv., Evans Electric & Appliance Co., 2435 King St., Gary, Ind.

Thomas H. Posey, Jr., Senior Sales Engineer, Commonwealth Edison Co., 72 W. Adams St.

Peter F. Girard, III, Project Manager, Great Western Contracting Co., 33 N. Wabash Ave.

Robert W. Cartwright, Senior Engineer, Western Electric Co., Inc., Hawthorne Station.

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Noon Luncheon News

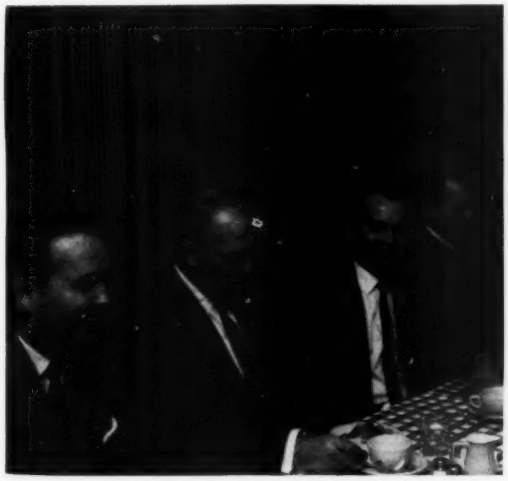
Series II Continues



On January 6, 1960, Lt. General William H. Arnold (left), Commanding General of the 5th U. S. Army, spoke on "The Modern Army in War." Also shown in the picture above is Colonel O. Fischer, who introduced General Arnold.



Among others seated at the speaker's table with General Arnold on January 6 was Western Society Member C. F. MacNish (left), Assistant Chief, Engineering Division, U. S. Army Division, North Central. Noon Luncheon Chairman John P. Donovan is at right.

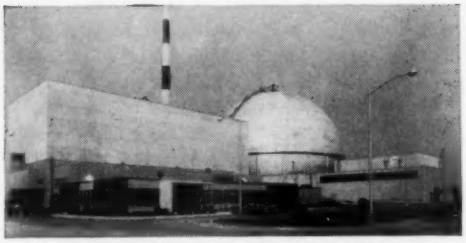


Robert A. Bambenek spoke on "Life Support Systems for the Man in Space" on January 20. Above we see the always cheerful Mr. Donovan (left), an amused Herbert C. Hoff, Mr. Bambenek, the speaker, and George C. Harris.



John G. Flobeck of the Petroleum Chemicals Division of E. I. Du Pont De Nemours & Co. spoke on January 13. His subject was "The Octane Appetite." Above he is shown as he commenced his talk. The Chemical Section acted as meeting co-sponsor.

Progress Report from Commonwealth Edison and Public Service Company

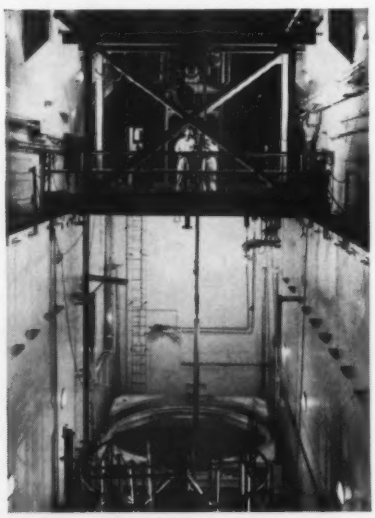


View of Dresden Nuclear Power Plant as it nears completion. Sphere in right center houses nuclear reactor and other components. 27,000 cubic yards of concrete were used for support and shielding walls inside the 190-foot-diameter steel sphere.

Dresden Station will soon be supplying electricity to Northern Illinois



Largest U.S. nuclear power reactor vessel arrives by barge from Camden, N.J. Built by the New York Shipbuilding Corp., delivery of the 300-ton unit was routed over the Atlantic and Gulf Intracoastal waterways to New Orleans and then up the Mississippi to Illinois waterways.



Loading nuclear power reactor installed at Dresden Station. Reactor fuel charge (called a "core") will consist of 488 nuclear fuel bundles weighing 65 tons.

Delivery of 300-ton reactor pressure vessel marks final stages of construction

The Dresden plant which will have a generating capacity of 180,000 kilowatts of electricity is several months ahead of the original scheduled completion date of December 7, 1960.

Financed without government subsidy

The entire project is being financed by private funds. The plant, to be owned directly by Commonwealth Edison, is being built by the General Electric Company (Bechtel Corporation is the engineer-constructor). Research and development expense is being shared by a number of companies associated in the Nuclear Power Group. The total cost to Commonwealth Edison and NPG, including research and development, will approximate $51,000,000. In addition to Commonwealth Edison, NPG is composed of American Electric Power Service Corporation, Bechtel Corporation, Central Illinois Light Company, Illinois Power Company, Kansas City Power & Light Company, Pacific Gas and Electric Company, and Union Electric Company.

Part of a $2,000,000-a-week expansion program

The Dresden plant is only one example of the company's planning for the future.

Now under construction and on order are approximately 1,600,000 kilowatts of new generating capacity, including Dresden. Largest single project is the giant 500,000 kilowatt unit to be installed at Will County Station north of Joliet. In 1963, the Edison system capacity is expected to be 6,463,000 kilowatts, *or nearly three times as much* as at the end of World War II!

The company's expenditures for new construction during the last 14 years have averaged *more than $2,000,000 a week.* Expenditures scheduled for the next four years will average over $3,000,000 a week to bring the total to more than 2 billion dollars in an 18-year period. All this has been done with one aim in mind—*to make sure there will always be plenty of low-cost electricity for the growth of Chicago and Northern Illinois.*

Commonwealth Edison
AND
Public Service Company

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